

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
20 October 2005 (20.10.2005)

PCT

(10) International Publication Number  
**WO 2005/099173 A1**

(51) International Patent Classification<sup>7</sup>: **H04L 12/28**,  
H04Q 7/38

**WISCHHUSEN, Olaf** [DE/NL]; Groenewoudseweg 1,  
NL-5621 BA Eindhoven (NL).

(21) International Application Number:  
PCT/IB2005/051066

(74) Common Representative: **KONINKLIJKE PHILIPS  
ELECTRONICS, N.V.**; c/o LUNDIN, Thomas, M., 595  
Miner Road, Cleveland, OH 44143 (US).

(22) International Filing Date: 30 March 2005 (30.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/559,756 6 April 2004 (06.04.2004) US  
60/578,337 9 June 2004 (09.06.2004) US

(71) Applicant (for all designated States except US): **KONIN-  
KLIJKE PHILIPS ELECTRONICS, N.V.** [NL/NL];  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

(71) Applicant: **U.S. PHILIPS CORPORATION** [US/US];  
1251 Avenue of the Americas, New York, NY 10020 (US).

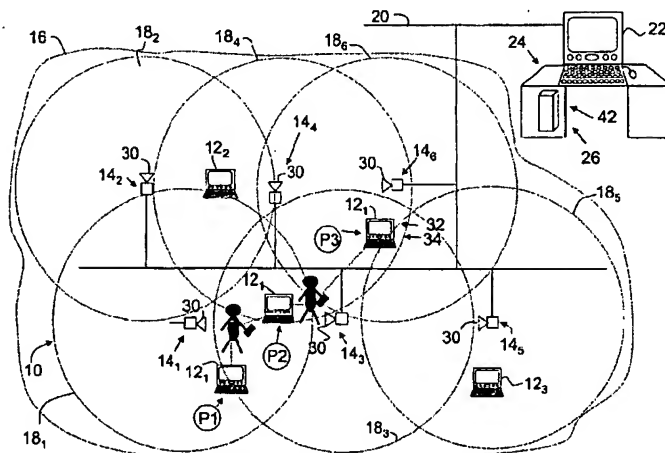
(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KAHLERT,  
Joachim, J.** [DE/NL]; Groenewoudseweg 1, NL-5621  
BA Eindhoven (NL). **BAUMEISTER, Markus** [DE/NL];  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

[Continued on next page]

(54) Title: LOCATION BASED HANDOFF FOR MOBILE DEVICES



(57) Abstract: Mobile devices (12<sub>1</sub>, 12<sub>2</sub>, ..., 12<sub>n</sub>) are handed off in overlapping cells (18<sub>1</sub>, 18<sub>2</sub>, ..., 18<sub>n</sub>) by tracking a velocity (speed and direction) of movement of any number of the mobile devices (12<sub>1</sub>, 12<sub>2</sub>, ..., 12<sub>n</sub>). Access points (14<sub>1</sub>, 14<sub>2</sub>, ..., 14<sub>n</sub>) are each located in an associated operational cell (18<sub>1</sub>, 18<sub>2</sub>, ..., 18<sub>n</sub>) and each operates at a dedicated frequency. The initial signal strengths are measured in advance at predefined locations within a defined space (16) to define signal strengths as location map (42). A nearby initial access point (typically the nearest) and at least two nearby (typically next nearest) access points are assigned for one of the mobile devices (12<sub>1</sub>, 12<sub>2</sub>, ..., 12<sub>n</sub>), and the frequencies of each access point identified. A tracking processor (50) periodically scans the frequencies of the nearby access points to determine the location velocity of the mobile device and predict when a handoff will be appropriate. E.g., the actual signal strength measurements between the mobile device and the nearby access points are collected and analyzed to determine a proper time for a handoff of one or more of the nearby access points.

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT,

BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

**Published:**

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.